our present plan/work

(subject to change – i.e. we have not yet received guidance from Willis/Kotcher as result of 4-5 Nov AGS Review

- Continue cost scrubbing and schedule development
- Highest priority to AGS/BOOSTER WBS 1.4.1
  - Cost scrubbing, what can we postpone until operations phase? etc…
  - Schedule – in particular a plan to get the AGS/BOOSTER in shape for high intensity beam development --- by beginning of 3rd year of construction?
  - Beam development plan that fits within constant effort RHIC budget scenario with 2 beams – i.e. figure on 80 hrs/week and 15 weeks/year
    - Case 1: Beam development during entire 5 year construction period
    - Case 2: Beam development beginning 3rd year of construction
- The construction plan should be developed consistent with no beam development in first two years of the project (Case 2 above)
  - D-line decommissioned
  - C-Line available beginning of 3rd year for tests
  - there's a risk (small) that we may have to revert back to the original plan (Case 1).

AGS RSVP Infrastructure - Costs

v24 12/3/04 Present Cost Estimate with 5 year beam development plus 1 year contingency

		RSVP AGS Infrastructure Labor FTE's # (without Contingency or beam development personnel)								
		Management	Admin	Eng'r	Physicist	Design	Tech	C-AD Total	DTS	Shops
	WBS									
AGS/Booster	1.4.1			11.75	3.74	12.03	23.59	**51.11**	2.78	6.16
Switchyard	1.4.2			2.36	0.35	0.88	10.69	**14.28**	2.98	1.28
K0PI0	1.4.3			5.24	3.47	2.01	11.03	**21.75**	5.56	0.46
MECO	1.4.4			7.74	4.95	2.55	14.62	**29.87**	8.41	1.86
AGS Project Office	1.4.5	5.00	1.25					**6.25**		
Total		**5.00**	**1.25**	**27.09**	**12.52**	**17.47**	**59.93**	**123.26**	**19.73**	**9.76**

does not include FTE's for beam development

		RSVP AGS Infrastructure Cost Summary (fully burdened)					
		Materials	C-AD Labor	DTS/Shops	Sub-Total	Contingency	Total
	WBS						
AGS/Booster	1.4.1	$ 9,089,483	$ 7,602,140	$ 1,657,914	**$ 18,349,537**	$ 3,577,192	**$ 21,926,729**
Switchyard	1.4.2	$ 1,564,618	$ 2,000,228	$ 647,597	**$ 4,212,442**	$ 828,652	**$ 5,041,094**
K0PI0	1.4.3	$ 4,508,504	$ 3,380,750	$ 823,878	**$ 8,713,132**	$ 2,073,546	**$ 10,786,678**
MECO	1.4.4	$ 3,583,557	$ 4,675,654	$ 1,477,120	**$ 9,736,330**	$ 2,274,310	**$ 12,010,640**
AGS Project Office	1.4.5	$ 62,864	$ 1,479,437		**$ 1,542,301**	$ 308,460	**$ 1,850,761**
TOTAL		**$ 18,809,025**	**$ 19,138,209**	**$ 4,606,509**	**$ 42,553,742**	**$ 9,062,160**	**$ 51,615,902**
Beam Development*		$ 14,305,738	$ 12,269,664		**$ 26,575,402**	$ 5,660,411	**$ 32,235,813**
RSVP AGS WBS Total		**$ 33,114,763**	**$ 31,407,872**	**$ 4,606,509**	**$ 69,129,144**	**$ 14,722,571**	**$ 83,851,715**

*** includes Personnel, M&S, DTS and Power Costs, assumes Jan 04 plan, FY06-10 running with RHIC and 1 year contingency with 10 weeks running outside RHIC**

What's Missing from this

AGS and Booster Collimators -- evaluating if this is possible

AGS RSVP Infrastructure - Costs

v24 12/3/04

Present Cost Estimate with 3 year beam development and no contingency
(The direction we are heading)

		RSVP AGS Infrastructure Labor FTE's # (without Contingency or beam development personnel)								
		Management	Admin	Eng'r	Physicist	Design	Tech	C-AD Total	DTS	Shops
	WBS									
AGS/Booster	1.4.1			11.75	3.74	12.03	23.59	**51.11**	2.78	6.16
Switchyard	1.4.2			2.36	0.35	0.88	10.69	**14.28**	2.98	1.28
K0PI0	1.4.3			5.24	3.47	2.01	11.03	**21.75**	5.56	0.46
MECO	1.4.4			7.74	4.95	2.55	14.62	**29.87**	8.41	1.86
AGS Project Office	1.4.5	5.00	1.25					**6.25**		
Total		**5.00**	**1.25**	**27.09**	**12.52**	**17.47**	**59.93**	**123.26**	**19.73**	**9.76**

does not include FTE's for beam development

DRAFT (not on web)		RSVP AGS Infrastructure Cost Summary (fully burdened)					
12/2/04		Materials	C-AD Labor	DTS/Shops	Sub-Total	Contingency	Total
	WBS						
AGS/Booster	1.4.1	$ 9,089,483	$ 7,602,140	$ 1,657,914	**$ 18,349,537**	$ 3,577,192	**$ 21,926,729**
Switchyard	1.4.2	$ 1,564,618	$ 2,000,228	$ 647,597	**$ 4,212,442**	$ 828,652	**$ 5,041,094**
K0PI0	1.4.3	$ 4,508,504	$ 3,380,750	$ 823,878	**$ 8,713,132**	$ 2,073,546	**$ 10,786,678**
MECO	1.4.4	$ 3,583,557	$ 4,675,654	$ 1,477,120	**$ 9,736,330**	$ 2,274,310	**$ 12,010,640**
AGS Project Office	1.4.5	$ 62,864	$ 1,479,437		**$ 1,542,301**	$ 308,460	**$ 1,850,761**
TOTAL		**$ 18,809,025**	**$ 19,138,209**	**$ 4,606,509**	**$ 42,553,742**	**$ 9,062,160**	**$ 51,615,902**
Beam Development*		$ 10,992,596	$ 6,678,995		**$ 17,671,591**	$ -	**$ 17,671,591**
RSVP AGS WBS Total		**$ 29,801,621**	**$ 25,817,204**	**$ 4,606,509**	**$ 60,225,333**	**$ 9,062,160**	**$ 69,287,493**

*** includes Personnel, M&S, DTS and Power Costs, assumes 15 weeks/year with RHIC for last 3 years of project**

What's Missing from this

AGS and Booster Collimators -- evaluating if this is possible

Beam Development: Case 1, 19 weeks/year with RHIC beginning 1st year, with contingency year

Example RSVP Beam Development Plan								
Assumptions								
(1) AGS not available for RSVP during 1st 7 weeks of RHIC operations and for 4 weeks/additional beam during a given year								
(2) Last week of RHIC operations is considered running outside RHIC operations since this is cryo warm-up week (injectors not running)								
(3) AGS is available for RSVP the balance of the time after reserving 15 weeks for shutdown work								
(4) 80 hours/week are available for RSVP experiments during RHIC Operations								
(5) 120 hours/week are available for RSVP experiments outside RHIC Operations								
(6) RHIC Cryo Operations based on "Constant Effort" budget - 27 weeks per year								
(7) Assumes RSVP Commissioning with neutral and muon beams in FY2009 and RSVP construction ends in FY2010 with an engineering run								
Example (Nov 04 plan)	**FY06**	**FY07**	**FY08**	**FY09***	**FY10****		**Contingency*****	
RHIC Cryo Weeks	**27**	**27**	**27**	**27**	**27**		**27**	
HI-HI Phys. Wks.	19	0	19	0	19		5	
pp, pHI Phys. Wks.	0	19	0	19	0		10	
Available Outside RHIC	10	10	10	10	10		10	
TOTAL RSVP Weeks Available	**29**	**29**	**29**	**29**	**29**		**25**	
K0PI0	7	9	6	7	9.5		5	
MECO	4	6	7	7	9.5		5	
Outside RHIC								
K0PI0	0	0	0	0	0		5	
MECO	0	0	0	0	0		5	
W/RHIC HI								
K0PI0	7	0	6	0	9.5		0	
MECO	4	0	7	0	9.5		0	
W/RHIC pp								
K0PI0	0	9	0	7	0		0	
MECO	0	6	0	7	0		0	
						Total		**Total W/Cont**
Personnel	$ 2,226,332	$ 2,226,332	$ 2,226,332	$2,795,334	$ 2,795,334	**$ 12,269,664**	$ 2,226,332	**$ 14,495,996**
Other	$ 2,196,172	$ 1,967,472	$ 2,511,194	$2,671,315	$ 4,959,586	**$ 14,305,738**	$ 3,434,079	**$ 17,739,817**
Total	**$ 4,422,504**	**$ 4,193,804**	**$ 4,737,525**	**$5,466,649**	**$ 7,754,920**	**$ 26,575,402**	$ 5,660,411	**$ 32,235,813**
*** Commissioning with neutral beam (K0PI0) and muon beam (K0PI0), full operations cost with reduced indirects**								
**** Engineering Run, full operations costs with reduced indirects**								
***** Contingency (with FY2006-2008 cost basis)**								

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Beam Development: Case 2, 15 weeks/year with RHIC beginning 3rd year, no contingency

Example RSVP Beam Development Plan								
Assumptions								
(1) AGS not available for RSVP during 1st 7 weeks of RHIC operations and for 4 weeks/additional beam during a given year								
(2) Last week of RHIC operations is considered running outside RHIC operations since this is cryo warm-up week (injectors not running)								
(3) AGS is available for RSVP the balance of the time after reserving 15 weeks for shutdown work								
(4) 80 hours/week are available for RSVP experiments during RHIC Operations								
(5) 120 hours/week are available for RSVP experiments outside RHIC Operations								
(6) RHIC Cryo Operations based on "Constant Effort" budget - 27 weeks per year								
(7) Assumes RSVP Commissioning with neutral and muon beams in FY2009 and RSVP construction ends in FY2010 with an engineering run								
Example (Nov 04 plan)	**FY06**	**FY07**	**FY08**	**FY09***	**FY10****		**Contingency*****	
RHIC Cryo Weeks	**27**	**27**	**27**	**27**	**27**		**27**	
HI-HI Phys. Wks.	5	10	5	10	5		5	
pp, pHI Phys. Wks.	10	5	10	5	10		10	
Available Outside RHIC	10	10	10	10	10		10	
TOTAL RSVP Weeks Available	**25**	**25**	**25**	**25**	**25**		**25**	
K0PI0	0	0	7.5	7.5	7.5		0	
MECO	0	0	7.5	7.5	7.5		0	
Outside RHIC								
K0PI0	0	0	0	0	0		0	
MECO	0	0	0	0	0		0	
W/RHIC HI								
K0PI0	0	0	2.5	5	2.5		0	
MECO	0	0	2.5	5	2.5		0	
W/RHIC pp								
K0PI0	0	9	5	2.5	5		0	
MECO	0	6	5	2.5	5		0	
						Total		**Total W/Cont**
Personnel	$ -	$ -	$ 2,226,332	$2,226,332	$ 2,226,332	**$ 6,678,995**	$ -	**$ 6,678,995**
Power								
Other	$ -	$ 1,967,472	$ 2,247,539	$3,564,349	$ 3,213,236	**$ 10,992,596**	$ -	**$ 10,992,596**
Total	**$ -**	**$ 1,967,472**	**$ 4,473,871**	**$5,790,681**	**$ 5,439,568**	**$ 17,671,591**	$ -	**$ 17,671,591**
*** Commissioning with neutral beam (K0PI0) and muon beam (K0PI0), full operations cost with reduced indirects**								
**** Engineering Run, full operations costs with reduced indirects**								
***** Contingency (with FY2006-2008 cost basis)**								

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Comments

- Lacking formal guidance, my assumption is no funds will be allocated in 2005 for RSVP beam development concurrent with RHIC operations.

- D6 Beam Line, presently available for tests but..
  - D-line to be decommissioned
  - If construction funds are not available until after this summer, then the D-line could be used in Spring 2005 after completion of RHIC run for dedicated RSVP tests

- LESBIII status
  - Low energy < 820 MeV/c
  - Separator #1 works only at low voltage
  - Primary beam line needs a beam dump